CHESAPEAKE BAY FOUNDATION *Report*

A Northern Potomac River Crossing:

Will It Address Regional Congestion?

Considerable discussion has arisen concerning an additional northern Potomac River crossing as a solution to regional transportation problems. The Chesapeake Bay Foundation's analysis of several official transportation studies of the "Techway" or related roads demonstrates that the construction of the proposed river crossing will have negligible effect on alleviating congestion in the area.

Moreover, this project would add to regional traffic growth on highways and local roads and exacerbate poor air quality. The increased nitrous oxides emitted by increased automobile travel are harmful to human health and are a significant source of Chesapeake Bay nutrient pollution.

SUMMARY OF FINDINGS

1. An additional Potomac River crossing will result in negligible traffic reduction on the Capital Beltway.

2. Additional travel demand will be caused by the construction of a new bridge, thereby contributing to increased vehicle miles traveled and pollution emissions.

3. The travel demand between Montgomery County and Fairfax/Loudoun Counties will be minimal in the coming years and most of the jobs in Montgomery County will continue to be located in the southern and eastern portions of the county, making a northern river crossing of little benefit to most commuters.

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NORTHERN VIRGINIA 2020 TRANSPORTATION PLAN

The Virginia Department of Transportation's *Northern Virginia 2020 Transportation Plan* and its supplemental documents modeled three crossing scenarios and demonstrated that the construction of a new Potomac River crossing at any of the three locations would have negligible benefits. The study illustrates that a new crossing would (1) do little to relieve congestion on the Capital Beltway, and (2) exacerbate the region's air pollution problems through increased vehicle miles traveled (VMT). In fact, the great majority of traffic utilizing an additional river crossing would be new trips generated by the mere presence of a bridge and the development it would bring about. The presence of a new crossing would encourage transit-users and carpoolers to switch to driving and encourage motorists to take more or longer trips or switch routes. This is known as short-term induced demand (Parsons Brinckerhoff Quade & Douglas, Inc., 1998). In the longer term (three years or more), as the new highway corridor stimulates more land development and motorists tend to move to more distant locations now accessible to jobs and shopping in the new corridor, the total amount of induced travel will rise even more. This is not only attributable to increased roadway capacity, but also increased accessibility of previously isolated areas (Parsons Brinckerhoff Quade & Douglas, Inc., 1998).

An average of 204,000 vehicles crossed the American Legion Bridge each weekday in 1997. This figure is expected to increase to 315,000 in 2020, under the Northern Virginia 2020 Transportation Plan's assumption that the bridge will be expanded from 8 to 10 lanes (Table 1). Depending on its location, if the proposed river crossing were built, the amount of traffic diverted from the American Legion Bridge could be nominal, as little as 4 percent (Table 2). Although the construction of a bridge at the Route 7100 alignment could potentially reduce traffic on the American Legion Bridge by as much as 14 percent (Table 2), it would generate as many as 69,000 **additional** trips across the Potomac each day, more trips that any other alternative crossing alignment (Table 3). This increase in regional vehicle miles traveled would have the most regional traffic impacts and greatest increase in vehicle-related air pollution emissions.

Other new highway corridor studies, including the *Inter-County Connector Draft Environmental Impact Statement* (Maryland Department of Transportation, State Highway Administration, 1997) and the 1997 *Western Transportation Corridor Study* (Parsons Brinckerhoff Quade & Douglas, Inc., 1997), have shown that the construction of a new highway can have a significant impact on traffic congestion on local roads connected to interchanges in its vicinity. For example, the construction of an "Inter-County Connector" in Maryland would require motorists to travel on several congested intersections (Level of Service F) in order to arrive at actual destinations. Some of these intersections would be additionally congested due to the new road (Maryland Department of Transportation, State Highway Administration, 1997). The construction of a "Western Transportation Corridor" in Northern Virginia between Route 7 in Loudoun County and Interstate 95 in either Prince William or Stafford County would have a similar impact on local traffic congestion. According to the *Western Transportation Corridor Study*, depending on its location, the construction of such a highway would potentially increase traffic on

Route 50 west of Route 606 by between 22.5 and 37.2 percent by the year 2020 over and above anticipated traffic growth. It was also projected to increase traffic on Route 7 west of Route 659 between 2.2 and 10.7 percent (Parsons Brinckerhoff Quade & Douglas, Inc., 1997). The construction of an additional Potomac Crossing would likely have similar impacts on local traffic at interchanges.

The figures specified by the *Northern Virginia 2020 Transportation Plan* and its supplemental documents demonstrate that the construction of an additional crossing would do little to alleviate congestion on the Capital Beltway and related roads. Although a nominal amount of traffic would be diverted from the American Legion Bridge, the total amount of Beltway traffic under any scenario will be substantially higher than it is today. The traffic volume on the American Legion Bridge in 2020 will likely be between 133 and 154 percent of the 2000 volume (Table 4).

Furthermore, **between 61 and 78 percent of the traffic on the proposed new river crossing would be induced by the presence of a new bridge and the development it would bring about.** In fact, the total amount of traffic crossing the Potomac could increase by as much as 22 percent. A projected 315,000 vehicles will cross the river each day in 2020 if an additional crossing is not constructed. As many as 384,000 vehicles will cross the Potomac each day if a new bridge is built along the Route 7100 alignment.

In contrast, the Washington Airports Task Force in *The Case for a New Potomac River Crossing and Parkway* stated that the absence of a northern river crossing causes excess VMT and unnecessary pollution and that the construction of a new bridge would reduce VMT and emissions. However, the Task Force's analysis failed to consider that increased road capacity induces additional travel. The Virginia Department of Transportation's analysis defied the Task Force's contention by demonstrating that the construction of a new bridge would increase the number of trips across the Potomac by between 16 and 22 percent, thereby increasing VMT and emissions.

Table 1: 2020 Potomac River Crossing Volumes, Daily Weekday Traffic

Alternative	WTC[1]	Route 28	Route 7100	American Legion Bridge (10 lanes and Heavy Rail)	Total Amount of Traffic	% Increase Over No-Build
No Additional Crossing	0	0	0	315,000	315,000	0%
WTC Crossing	65,000	0	0	301,000	366,000	16%
Route 28 Crossing	0	85,000	0	294,000	379,000	20%
Route 7100 Crossing	0	0	113,000	271,000	384,000	22%

[1] WTC: Proposed Western Transportation Corridor alignment located south and east of Leesburg.

Source: Virginia Department of Transportation. "2020 Plan Findings from Testing Additional Potomac River Crossings," 2001.

Table 2: 2020 Daily Weekday Traffic Diverted from American Legion Bridge to Northern Crossing

Alternative	Amount of Northern Crossing Traffic Diverted from American Legion Bridge	Diverted Traffic as a % of the Total Amount of Traffic on American Legion Bridge
No Additional Crossing	0	0%
WTC Crossing	14,000	4%
Route 28 Crossing	21,000	7%
Route 7100 Crossing	44,000	14%

Source: Virginia Department of Transportation. "2020 Plan Findings from Testing Additional Potomac River Crossings," 2001.

Table 3: 2020 Daily Weekday Traffic Induced by Northern Crossing

Alternative	Amount of Induced Traffic on Northern Crossing	Induced Traffic as a % of the Total Amount of Traffic
No Additional Crossing	0	0%
WTC Crossing	51,000	78%
Route 28 Crossing	64,000	75%
Route 7100 Crossing	69,000	61%

Source: Virginia Department of Transportation. "2020 Plan Findings from Testing Additional Potomac River Crossings," 2001.

Table 4: 2020 Daily Weekday Traffic Volumes on the American Legion Bridge as a Percent of 2000 Levels

Alternative	Traffic Volume on American Legion Bridge (10 lanes and Heavy Rail)	% of 2000 Traffic Volume
No Additional Crossings	315,000	154%
WTC Crossing	301,000	148%
Route 28 Crossing	294,000	144%
Route 7100 Crossing	271,000	133%

Source: Virginia Department of Transportation. "2020 Plan Findings from Testing Additional Potomac River Crossings," 2001.

The flow of traffic on Potomac River crossings is not projected to improve with the construction of an additional crossing. **The Level of Service (LOS) of the American Legion Bridge will remain at F regardless of whether or not an additional crossing is**

constructed. Although, the LOS of the Point of Rocks Bridge will improve from G to F, drivers using the crossing will continue to experience significant congestion (Table 6). **The LOS of a new crossing is also expected to be F, as induced traffic will bring about congested conditions** (Table 6). Drivers on both roads would experience forced flow and traffic delays.

Table 5: Level of Service Definitions

Level of Service (LOS)	Expected Traffic Conditions
A	free traffic flow, low volumes, high speeds
B	stable traffic flow, some speed restrictions
C	stable flow, increasing traffic volumes
D	approaching unstable flow, heavy traffic volumes, decreasing speeds
E	Low speeds, high traffic volumes approaching roadway capacity, temporary delays
F	forced flow with traffic delays

Source: Maryland Department of Transportation, State Highway Administration. *Draft Environmental Impact Statement*, *Maryland Route 32 Planning Study*, 1999.

Table 6: 2020 Level of Service for Potomac Crossings

	Baseline LOS	LOS with Additional Crossing
American Legion Bridge	F	F
Northern Crossing	-	F
Point of Rocks	G	F

Source: Virginia Department of Transportation. "2020 Plan Findings from Testing Additional Potomac River Crossings," 2001.

MONTGOMERY COUNTY TRANSPORTATION POLICY REPORT

The Montgomery County *Transportation Policy Report* (TPR) demonstrates that the number of people who make the "U-shaped" commute between Montogmery Counties and Fairfax/Loudoun Counties is nominal. In 1990, only 5 percent of all trips originating in Montgomery County ended in Fairfax County and only 2 percent of trips originating in Montgomery County ended in Loudoun County. Likewise, only 4 percent of trips originating in Fairfax County and 1 percent of trips originating in Loudoun County ended in Montgomery County (Table 7). This trend is expected to continue through the year 2020. Because the American Legion Bridge would still provide the most direct route, many of these trips, including those beginning or ending in Bethesda, Fairfax,

Silver Spring, and Tysons Corner, are likely to be unaffected by the construction of an additional Potomac River crossing. Although the Greater Washington Board of Trade has argued that a new bridge would cut the travel time between Rockville and Dulles Airport in half, only a handful of drivers make such a trip (Greater Washington Board of Trade). An average of only 4,750 of the people using Dulles Airport each day in 1998 began or ended their trip in Montgomery County, while an average of over 200,000 vehicles crossed the American Legion Bridge each weekday (Washington Airports Task Force). Furthermore, because many of these people reside in southern and eastern portions of Montgomery County, they will likely cross the American Legion Bridge regardless of the presence of an additional crossing. Official transportation studies, including the TPR, show that the construction of a new Potomac River crossing will only shorten trips for a small number of people.

Table 7: 2020 Percentage of All Trips Beginning in Montgomery County and Ending in Northern Virginia

	% of Trips Ending in Montgomery County	% of Trips Ending in Fairfax County	% of Trips Ending in Loudoun County
Beginning in Fairfax County	5%	-	-
Beginning in Loudoun County	1%	-	-
Beginning in Montgomery County	-	5%	1%

Source: Maryland-National Capital Park & Planning Commission. *Transportation Policy Report, 1999.*

The *Transportation Policy Report* also demonstrates that **in 2025, the majority of jobs in Montgomery County will continue to be located in the southern and eastern portions of the county** (Table 8). **71 percent of jobs will be located in Bethesda, Silver Spring, Rockville, North Bethesda, the Georgia Avenue Corridor, and the Eastern County area** (Table 8). The construction of an additional Potomac River crossing would do little to benefit individuals who work in these areas.

Table 8: 2025 Distribution of Jobs in Montgomery County

Location (TPR District)	Number of Jobs	% of Jobs in County
Bethesda	114,294	17%
Silver Spring	64,859	10%
Rockville, North Bethesda	210,173	31%
Gaithersburg, Shady Grove	112,189	17%
Germantown, Clarksburg	50,992	8%
Georgia Avenue	52,425	8%
Eastern County	43,112	6%
Rural Areas	26,950	4%
Total	**674,994**	**100%**

Source: Maryland-National Capital Park & Planning Commission. ***Transportation Policy Report, 2001.***

CONCLUSIONS

These analyses demonstrate that construction of an additional Potomac River crossing will have negligible benefits. Traffic reduction on the Capital Beltway would be nominal and substantial new travel demand would be generated by such a new facility. Moreover, the travel demand between Montgomery County and Fairfax/Loudoun Counties will be minimal in the coming years. Most of the jobs in Montgomery County will continue to be located in the southern and eastern portions of the county, making a northern river crossing of little benefit to most commuters.

Instead of providing attractive travel choices for the future, a new Potomac River crossing would likely bring about many negative effects – adding to regional traffic growth on highways and local roads and exacerbating poor air quality. The increased nitrous oxides emitted by increased automobile travel contribute to ozone pollution that is harmful to human health and persist as a significant source of nutrient pollution for the Chesapeake Bay. The benefits of a north Potomac crossing appear to be negligible, and the costs significant.

Solutions to our region's transportation problems lay in a synergistic set of better land use and transportation decisions. We need policies and incentives that promote compact development inside and adjacent to existing communities. We need development centered around transit stations, rural land conservation, travel demand management, employer-supported commuter choice benefits, driving and parking pricing, improved and increased transit service, and better walking and bicycling facilities, as healthy alternatives to endless and inefficient highway building.

SOURCES

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